

Notice of Allowability

Application No.

10/802,806

Applicant(s)

IZUMI ET AL.

Examiner

Art Unit

Heather A. Doty

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to the after-final amendment dated 6/14/2006.
2. ☒ The allowed claim(s) is/are 1 and 3-6.
3. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some* c) ☐ None of the:
1. ☐ Certified copies of the priority documents have been received.
2. ☒ Certified copies of the priority documents have been received in Application No. 10/351,385.
3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
- (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
- 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
- (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☒ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☒ Information Disclosure Statements (PTO-1449 or PTO/SB/08),
Paper No./Mail Date 2/7/2006
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application (PTO-152)
6. ☐ Interview Summary (PTO-413),
Paper No./Mail Date _____
7. ☐ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____


CARL WHITEHEAD, JR.
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2800

DETAILED ACTION

Allowable Subject Matter

Claims 1 and 3-6 are allowed.

The following is an examiner's statement of reasons for allowance: Prior art does not teach or suggest, in combination with the other claimed limitations, an apparatus for forming SiC, comprising a gas-supply means that supplies each of a mixed gas of a hydrogen gas and a hydrocarbon gas, an inert gas, and an oxygen gas, the apparatus configured to etch using a mixture of the inert gas and the oxygen gas.

Steckl-1, the closest prior art of record, teaches a manufacturing apparatus for forming silicon carbide layers similar to the one claimed in claims 1 and 3, but does not teach that the gas-supply means supplies an inert gas mixed with an oxygen gas, in addition to the hydrogen gas and hydrocarbon gas.

Hsu et al. (U.S. 4,664,944) teaches a method and apparatus for forming a silicon carbide layer. The method includes a step of removing a carbon substrate by heating it in oxygen, but the apparatus, a fluidized bed SiC reactor, does not have gas-supply means to configured to supply an inert gas mixed with an oxygen gas. And the fluidized bed SiC reactor employed by Hsu et al. is a different type altogether from the RTCVD apparatus taught by Steckl-1, so there would be no motivation to combine the two references to arrive at the invention as taught by claims 1 or 3, even if Hsu et al. did teach supplying a mixed gas of oxygen and an inert gas.

Izumi et al. (EP 1265274, published December 11, 2002), which has several inventors in common with the instant application, teaches the gas-supply means of

claims 1 and 3 (see abstract), but was published after the foreign priority date and less than a year before the U.S. priority date of the instant application.

Finally, Niino et al. (EP 0454456, published 10/30/1991) teaches forming a SiC-containing layer using an apparatus with a gas-supply means that supplies a hydrogen gas, a hydrocarbon gas, and an oxygen gas, but does not teach mixing the oxygen gas with an inert gas so that the apparatus is configured to etch.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Heather A. Doty, whose telephone number is 571-272-8429. The examiner can normally be reached on M-F, 8:30 - 5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Carl Whitehead, Jr., can be reached at 571-272-1702. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For

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more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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